



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,680	10/17/2003	Chih-Yuan Chen	MTKP0089USA	2679
27765 7590 07/25/2007 NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			EXAMINER LAMB, CHRISTOPHER RAY	
			ART UNIT 2627	PAPER NUMBER
			NOTIFICATION DATE 07/25/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

winstonhsu.uspto@gmail.com  
Patent.admin.uspto.Rcv@naipo.com  
mis.ap.uspto@naipo.com.tw

<b>Office Action Summary</b>	<b>Application No.</b> 10/605,680	<b>Applicant(s)</b> CHEN, CHIH-YUAN	
	<b>Examiner</b> Christopher R. Lamb	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 7<sup>th</sup>, 2007, has been entered.

### ***Claim Objections***

2. Claim 7 objected to because of the following informalities: in lines 2-3, there is a redundant "wherein." The claim states "...wherein wherein the selected..." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This is a claim to an optical disc recording apparatus. The claim recites "wherein the selected run length is longer when the photodiode has a relatively slower response than when the photodiode has a relatively faster response."

It is unclear what is being claimed. The photodiode of the apparatus has a fixed response. It is not clear if this is a claim to an apparatus with a slower response and a long run length, or a claim to an apparatus with a faster response and a slower run length. This claim is indefinite because it is unclear what structure of the apparatus is being claimed.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 7, 8, 10, 11, 13-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watabe (US 2002/0018419) in view of Kenjo (US 5,029,155).

Regarding claim 1:

Watabe discloses:

An optical disc recording apparatus comprising:

a laser diode driven according to a write strategy generator (paragraphs 17-21: the write strategy generator is not specifically disclosed, but it is inherent, since the laser diode is driven according to the described write strategy);

a photodiode for generating output voltage according to a sensed power of the light pulse (paragraph 17); and

an Endec controller, coupled to the write strategy generator, for generating an APC mode signal and a predefined NRZI pattern having a run length selected according

Art Unit: 2627

to a relationship between recording speed and a bandwidth of the photodiode (paragraph 21).

Watabe does not disclose:

that the laser diode is driven to generate a multi-pulse light pulse having a fixed duty ratio with two power levels during APC mode;

a signal processor for averaging the generated output voltage;

at least one sample and hold circuit coupled to the signal processor for sampling and holding the average generated output voltage according to a sample and hold signal;

wherein the power of the laser diode is controlled according to held average generated output voltage occurring during the APC mode.

Kenjo discloses:

a laser diode driven to generate a multi-pulse light pulse having a fixed duty ratio with two power levels during APC mode (column 10, lines 15-45);

a signal processor for averaging the generated output voltage (column 10, lines 15-45: integrating the monitor signal is equivalent to averaging it);

at least one sample and hold circuit coupled to the signal processor for sampling and holding the average generated output voltage according to the sample and hold signal (column 10, lines 15-45);

wherein the power of the laser diode is controlled according to held average generated output voltage during the APC mode (column 10, lines 15-45: see also the second embodiment).

Kenjo discloses that this allows setting a recording light level without requiring a high-speed signal processing system (column 2, lines 30-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Watabe the elements taught by Kenjo (as discussed above). The motivation would have been to be able to set the recording light level without requiring an expensive high-speed signal processing system.

Regarding claim 2:

In Watabe in view of Kenjo the signal processor for averaging the generated output voltage is a low pass filter (it is the sample & hold circuit: Kenjo, column 10, lines 15-35; earlier Kenjo discloses the sample & hold circuit may be a low-pass filter: column 6, lines 35-40).

Regarding claim 3:

The apparatus of Watabe in view of Kenjo further comprises a sample and hold signal generator connected to the Endec controller for generating a sample and hold signal when the average generated output voltage has substantially stabilized (Kenjo: column 10, lines 15-35).

Regarding claim 4:

The apparatus of Watabe in view of Kenjo further comprises at least one sample and hold circuit connected to the low-pass filter and to the sample and hold signal generator for sampling and holding the average generated output voltage according to the sample and hold signal (Kenjo taught the low-pass filter as discussed above; the rest of the sample and hold circuit was already present in Watabe: paragraph 21).

Regarding claim 7:

As noted in the 35 USC 112, second paragraph, rejection above, it is unclear what structure this limitation is intended to claim. However, since Watabe in view of Kenjo discloses a photodiode with a slow response (Watabe paragraph 21), and discloses the same run length (11T) Applicant discloses as corresponding to a photodiode with a slow response (Watabe paragraph 21; specification paragraph 31), the apparatus disclosed by Watabe in view of Kenjo must be structurally equivalent to that claimed: the selected run length is longer when the photodiode has a relatively slower response than when the photodiode has a relatively faster response.

Regarding claim 8:

In Watabe in view of Kenjo the Endec controller initiates the APC mode exclusively with predefined APC areas of the optical disc (it occurs in the recording mark portion: Kenjo, column 10, lines 15-45).

Regarding claims 10, 13-15, and 17:

These are method claims containing steps performed by the apparatus of claims 1, 7, and 8, and are met when the apparatus operates.

Regarding claim 11:

Watabe in view of Kenjo discloses wherein the predetermined fixed-duty ratio is less than one (Kenjo column 10, lines 15-45).

Regarding the limitation wherein "the selected run length is longer when the photodiode has a relatively slower response than when the photodiode has a relatively faster response," in Watabe in view of Kenjo the selected run length is long and the



photodiode has a relatively slower response (paragraph 21): therefore this limitation has been met.

7. Claims 9, 16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watabe in view of Kenjo as applied to the claims above, and further in view of Hsu et al (US 2005/0025018; cited in previous action).

Regarding claim 9:

Watabe in view of Kenjo discloses an optical disc recording apparatus as discussed above.

Watabe in view of Kenjo does not disclose wherein the laser diode utilizes a Blu-ray, rewriteable standard.

Hsu discloses a Blu-ray, rewriteable standard (paragraph 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Watabe in view of Kenjo wherein the laser diode utilizes a Blu-ray, rewriteable standard, as taught by Hsu.

The motivation would have been to make the apparatus compatible with the blu-ray standard, expanding functionality.

Regarding claims 16, 18, and 20:

All elements of these claims are present in Watabe in view of Kenjo and further in view of Hsu; see earlier rejections.

Regarding claim 19:

All elements positively recited have already been discussed with regards to earlier rejections (see in particular the rejection of claim 11 above).



Regarding the limitation wherein "the selected run length is not constrained to the maximum run length permitted under the Blu-ray specification," there is nothing in Watabe in view of Kenjo and further in view of Hsu that indicates that it would have to be constrained to this run length.

8. Claims 5, 6, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watabe in view of Kenjo as applied to the claims above, and further in view of Suzuki (US 6,744,031; cited in previous action).

Regarding claim 12:

Watabe in view of Kenjo discloses a method as discussed above.

Watabe in view of Kenjo discloses wherein the substantially averaged photodiode output voltage is compared to a target power for controlling the power of the laser diode (done in error correcting circuit of Kenjo 44).

Watabe in view of Kenjo does not disclose wherein the substantially averaged photodiode output voltage multiplied by the inverse of the fixed duty ratio is compared to a target power for controlling the power of the laser diode.

Suzuki discloses that when averaging a light pulse with a duty ratio the average power is equal to the target power multiplied by the duty ratio (column 4, lines 60-65).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Watabe in view of Kenjo wherein the substantially averaged photodiode output voltage multiplied by the inverse of the fixed duty ratio is compared to a target power for controlling the power of the laser diode (this is the inverse of the equation taught by Suzuki).

The motivation would have been to have the correct power .

Regarding claims 5-6:

They are met by the combination of Watabe in view of Kenjo, and further in view of Suzuki discussed above.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watabe in view of Kenjo and further in view of Hsu as applied to the claims above, and further in view of Suzuki.

Watabe in view of Kenjo, and further in view of Hsu, was discussed with regards to claim 19.

Watabe in view of Kenjo, and further in view of Hsu, does not disclose wherein the substantially averaged photodiode output voltage multiplied by the inverse of the fixed duty ratio is compared to a target power for controlling the power of the laser diode.

Suzuki discloses that when averaging a light pulse with a duty ratio the average power is equal to the target power multiplied by the duty ratio (column 4, lines 60-65).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Watabe in view of Kenjo, and further in view of Hsu, wherein the substantially averaged photodiode output voltage multiplied by the inverse of the fixed duty ratio is compared to a target power for controlling the power of the laser diode (this is the inverse of the equation taught by Suzuki).

The motivation would have been to have the correct power.

### ***Response to Arguments***

10. Applicant's arguments filed May 7<sup>th</sup>, 2007, have been considered.

First, applicant argues that while the prior art has only one run length, the application discloses a method wherein the run length is selected based on the speed of the disc and the bandwidth of the detector.

Regarding claims 1, 10, and 18, Applicant argues that the limitation "a predefined NRZI pattern having a run length selected according to a relationship between recording speed and a bandwidth of the photodiode" therefore distinguishes the claims over the prior art.

Applicant concludes by arguing that while the application can lengthen a run length to properly perform power control, the prior art must use the fixed run length.

However, this is not claimed in claims 1, 10, or 18. None of these claims have limitations directed to changing or lengthening the run length. Instead, they merely claim wherein the run length is selected according to the speed and the bandwidth of the photodiode. A fixed run length meets this limitation as long as it has been selected according to the speed and the bandwidth.

Watabe was relied upon to teach this element. In paragraph 21, Watabe states that the write pulse is a pattern with a run length of 11T. Watabe further discloses that this pattern is acceptable because at the desired speed the required bandwidth of the photodiode is low, and an inexpensive component can be used. Therefore Watabe has selected a run length according to the speed and the bandwidth of the desired (inexpensive) photodetector. Watabe in view of Kenjo may never change the run length,

Art Unit: 2627

as Applicant argues, but that is irrelevant, because changing the run length is not claimed in claims 1, 10, or 18.

Applicant also argues that the further limitations in claims 7, 11, and 19 further distinguish the apparatus over the prior art.

Regarding claim 7, as noted in the 35 USC 112 rejection above, since this is a claim to an apparatus the claim limitation must further distinguish the structure of the apparatus. It is unclear what structure this further limitation is intended to claim.

Regardless, since Watabe in view of Kenjo discloses the same sort of photodiode and the same run length as claimed by Applicant, no structural difference between the prior art and the claim was found.

Regarding claims 11 and 19, since these are method claims, no 35 USC 112 rejection has been applied. However, these claims only require that one run length be selected: if the photodiode is faster, it can be shorter, and vice versa. The prior art of record chooses a run length appropriate to the photodiode, and so meets these claims as they are currently worded.

Finally, Applicant makes an argument as to what would happen if the recording speed of Watabe were increased: however, since none of the claims recite a limitation that the run length should be changed with the recording speed, this argument is not relevant.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (571)

Art Unit: 2627

272-5264. The examiner can normally be reached on 9:00 AM to 6:30 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 7/18/07

/William R. Korzuch/

SPE, Art Unit 2627